



Town of Norfolk

Building Department

1 Liberty Lane
Norfolk, MA 02056

Michael Brogan
Mechanical Inspector

Phone 508-528-5088
Fax 508-541-3300

SHEET METAL PERMIT REQUIREMENTS

Here is a brief summary of how & what to put into your application for a Sheet Metal permit.

All Contractors are required to have a PIN number to apply online for a permit.

If you have a PIN number proceed to Sheet Metal Permit Requirements below.

If you need a PIN number. Please bring to the Building Department a copy of your license (s), Workers Comp. Insurance Affidavit and Certificate, Liability Insurance Certificate and an email address for you and we can add you to the database and provide you with a PIN number.

If you have multiple licenses we can input all the licenses with the same PIN number.

Once you have a PIN number you will be able to fill out applications online in all towns utilizing the PeopleGis software. The application will ask for your license number and Pin number then click the validate button and the system will automatically fill in all your insurance and contractor information every time you apply for a permit.

The system will notify you by email when your license or Insurance is expired. When you update your expired Insurance or license please send us copies so that we can update the database.

Sheet Metal Permit Requirements

In the Permit Application Tab put in the address of the permit, then look for Sheet Metal Permits and under that heading in the bottom right click on Apply for Permit and answer all questions until complete.

In the application there is a tab called Required Documents please scan and input your documents and plans here under the proper heading. We have samples of those required documents below. Please make sure that all the information is in each section. We have highlighted areas of importance.

Manual J (sample provided) with the following sections: (Project summary entire house with contractors name or designers name, Load short form entire house, Load short form for each system and component construction entire house)

Manual S (sample provided) with the following sections: (Compliance report entire house and compliance report for each system)

Manual D (sample provided) with the following sections: (Duct system summary entire house and for each system duct plan based on Manual J, S, and D data)

All ducted systems require a **Duct Blower Test** of less than 4% Air Leakage. **Inspector must be present** at test.

Contractor is required to be present at all inspections.

All ductwork in the basement can only be installed in between the joists if the ducts are a minimum R-8. Ducts cannot be installed in between ceiling joists in the attic. All ductwork must be insulated to the underside of the floor or sheetrock.

Air Balance maybe required at Inspectors discretion.

Panning of bays for supply or returns is not allowed.

Kitchen exhaust systems- (show cfm output) \$ 50.00 each
Any new exhaust system over 400 cfm shall have a makeup air system.

Permit fee: Residential Minimum Fee \$ 50.00,
Residential New Construction HVAC \$150.00
Ductless \$150.00
Commercial Minimum Fee \$ 100.00
Commercial New Construction HVAC \$100.00 + 2%
of contract.
Metal Roofing \$5.00 per 100 square feet

Once application is complete we will review as soon as possible and email any discrepancies.

Commonwealth of Massachusetts

Sheet Metal Permit

Date: _____ Permit # _____

Estimated Job Cost: \$ _____ Permit Fee: \$ _____

Plans Submitted: YES ___ NO ___ Plans Reviewed: YES ___ NO ___

Business License # _____ Applicant License # _____

Business Information: Property Owner / Job Location Information:

Name: _____ Name: _____

Street: _____ Street: _____

City/Town: _____ City/Town: _____

Telephone: _____ Telephone: _____

Photo I.D. required / Copy of Photo I.D. attached: YES ___ NO ___

Staff Initial

J-1 / M-1-unrestricted license

J-2 / M-2-restricted to dwellings 3-stories or less and commercial up to 10,000 sq. ft. / 2-stories or less

Residential: 1-2 family ___ Multi-family ___ Condo / Townhouses ___ Other ___

Commercial: Office ___ Retail ___ Industrial ___ Educational ___

Institutional ___ Other ___

Square Footage: under 10,000 sq. ft. ___ over 10,000 sq. ft. ___ Number of Stories: ___

Sheet metal work to be completed: New Work: ___ Renovation: ___

HVAC ___ Metal Watershed Roofing ___ Kitchen Exhaust System ___

Metal Chimney / Vents ___ Air Balancing ___

Provide detailed description of work to be done:

INSURANCE COVERAGE:

I have a current liability insurance policy or its equivalent which meets the requirements of M.G.L. Ch. 112 Yes No

If you have checked Yes, indicate the type of coverage by checking the appropriate box below:

A liability insurance policy Other type of indemnity Bond

OWNER'S INSURANCE WAIVER: I am aware that the licensee does not have the insurance coverage required by Chapter 112 of the Massachusetts General Laws, and that my signature on this permit application waives this requirement.

Check One Only

Owner Agent

Signature of Owner or Owner's Agent

By checking this box , I hereby certify that all of the details and information I have submitted (or entered) regarding this application are true and accurate to the best of my knowledge and that all sheet metal work and installations performed under the permit issued for this application will be in compliance with all pertinent provision of the Massachusetts Building Code and Chapter 112 of the General Laws.

Duct inspection required prior to insulation installation: YES _____ NO _____

Progress Inspections

Date

Comments

<u>Date</u>	<u>Comments</u>
_____	_____
_____	_____
_____	_____
_____	_____

Final Inspection

Date

Comments

<u>Date</u>	<u>Comments</u>
_____	_____

By _____ Title _____ City/Town _____ Permit # _____ Fee \$ _____ Inspector Signature of Permit Approval	Type of License: <input type="checkbox"/> Master <input type="checkbox"/> Master-Restricted <input type="checkbox"/> Journey person <input type="checkbox"/> Journey person-Restricted <input type="checkbox"/> _____	_____ Signature of Licensee License Number: _____ Check at www.mass.gov/dpl
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The Commonwealth of Massachusetts
 Department of Industrial Accidents
 1 Congress Street, Suite 100
 Boston, MA 02114-2017
 www.mass.gov/dia

Workers' Compensation Insurance Affidavit: Builders/Contractors/Electricians/Plumbers.
 TO BE FILED WITH THE PERMITTING AUTHORITY.

Applicant Information

Please Print Legibly

Name (Business/Organization/Individual): _____

Address: _____

City/State/Zip: _____ Phone #: _____

<p>Are you an employer? Check the appropriate box:</p> <p>1. <input type="checkbox"/> I am an employer with _____ employees (full and/or part-time).*</p> <p>2. <input type="checkbox"/> I am a sole proprietor or partnership and have no employees working for me in any capacity. [No workers' comp. insurance required.]</p> <p>3. <input type="checkbox"/> I am a homeowner doing all work myself. [No workers' comp. insurance required.] †</p> <p>4. <input type="checkbox"/> I am a homeowner and will be hiring contractors to conduct all work on my property. I will ensure that all contractors either have workers' compensation insurance or are sole proprietors with no employees.</p> <p>5. <input type="checkbox"/> I am a general contractor and I have hired the sub-contractors listed on the attached sheet. These sub-contractors have employees and have workers' comp. insurance. ‡</p> <p>6. <input type="checkbox"/> We are a corporation and its officers have exercised their right of exemption per MGL c. 152, §1(4), and we have no employees. [No workers' comp. insurance required.]</p>	<p>Type of project (required):</p> <p>7. <input type="checkbox"/> New construction.</p> <p>8. <input type="checkbox"/> Remodeling</p> <p>9. <input type="checkbox"/> Demolition</p> <p>10. <input type="checkbox"/> Building addition</p> <p>11. <input type="checkbox"/> Electrical repairs or additions</p> <p>12. <input type="checkbox"/> Plumbing repairs or additions</p> <p>13. <input type="checkbox"/> Roof repairs</p> <p>14. <input type="checkbox"/> Other _____</p>
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*Any applicant that checks box #1 must also fill out the section below showing their workers' compensation policy information.
 † Homeowners who submit this affidavit indicating they are doing all work and then hire outside contractors must submit a new affidavit indicating such.
 ‡ Contractors that check this box must attached an additional sheet showing the name of the sub-contractors and state whether or not those entities have employees. If the sub-contractors have employees, they must provide their workers' comp. policy number.

I am an employer that is providing workers' compensation insurance for my employees. Below is the policy and job site information.

Insurance Company Name: _____

Policy # or Self-ins. Lic. #: _____ Expiration Date: _____

Job Site Address: _____ City/State/Zip: _____

Attach a copy of the workers' compensation policy declaration page (showing the policy number and expiration date).

Failure to secure coverage as required under MGL c. 152, §25A is a criminal violation punishable by a fine up to \$1,500.00 and/or one-year imprisonment, as well as civil penalties in the form of a STOP WORK ORDER and a fine of up to \$250.00 a day against the violator. A copy of this statement may be forwarded to the Office of Investigations of the DIA for insurance coverage verification.

I do hereby certify under the pains and penalties of perjury that the information provided above is true and correct.

Signature: _____ Date: _____

Phone #: _____

<p>Official use only. Do not write in this area, to be completed by city or town official.</p>	
<p>City or Town: _____</p>	<p>Permit/License # _____</p>
<p>Issuing Authority (circle one):</p> <p>1. Board of Health 2. Building Department 3. City/Town Clerk 4. Electrical Inspector 5. Plumbing Inspector</p> <p>6. Other _____</p>	
<p>Contact Person: _____</p>	<p>Phone #: _____</p>



Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)

Form
RPER 1
15 Mar 09

Header Information

Contractor: _____
 Mechanical license: _____
 Building plan #: _____
 Home address (Street or Lot#, Block, Subdivision): _____, Entire House

REQUIRED ATTACHMENTS

Manual J1 Form (and supporting worksheets):
 or MJ1AE Form* (and supporting worksheets):
 OEM performance data (heating, cooling, blower):
 Manual D Friction Rate Worksheet:
 Duct distribution sketch:

ATTACHED

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>

HVAC LOAD CALCULATION (IRC M1401.3)

Design Conditions

Winter Design Conditions

Outdoor temperature: _____ 9 °F
 Indoor temperature: _____ 70 °F
 Total heat loss: _____ 28416 Btuh

Summer Design Conditions

Outdoor temperature: _____ 88 °F
 Indoor temperature: _____ 75 °F
 Grains difference: _____ 36 gr/lb @50% RH
 Sensible heat gain: _____ 15799 Btuh
 Latent heat gain: _____ 4168 Btuh
 Total heat gain: _____ 19967 Btuh

Building Construction Information

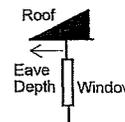
Building

Orientation: _____ Front Door faces North
North, East, West, South, Northeast, Northwest, Southeast, Southwest

Number of bedrooms: _____ 0
 Conditioned floor area: _____ 1797 ft²
 Number of occupants: _____ 4

Windows

Eave overhang depth: _____ 0 ft
 Internal shade: _____ blinds
Blinds, drapes, etc.
 Number of skylights: _____ 0



HVAC EQUIPMENT SELECTION (IRC M1401.3)

Heating Equipment Data

Equipment type: _____ Split ASHP
Furnace, Heat pump, Boiler, etc.
 Model: _____ Amana
 ASZ130241A*+AWUF24XX16B*
 Heating output capacity: _____ 0 Btuh
Heat pumps - capacity at winter design outdoor conditions
 Aux. heating output capacity: _____ 37000 Btuh

Cooling Equipment Data

Equipment type: _____ Split ASHP
Air Conditioner, Heat pump, etc.
 Model: _____ Amana
 ASZ130241A*+AWUF24XX16B*
 Total cooling capacity: _____ 19893 Btuh
 Sensible cooling capacity: _____ 15570 Btuh
 Latent cooling capacity: _____ 4324 Btuh

Blower Data

Heating cfm: _____ 800
 Cooling cfm: _____ 700
 Static pressure: _____ 0.65 in H2O
Fan's rated external static pressure for design airflow

HVAC DUCT DISTRIBUTION SYSTEM DESIGN (IRC M1601.1)

Design airflow: _____ 800 cfm	Longest supply duct: _____ 213 ft	Duct Materials Used
Equipment design ESP: _____ 0 in H2O	Longest return duct: _____ 273 ft	Trunk duct: _____ Sheet metal
Total device pressure losses: _____ -0.3 in H2O	Total effective length (TEL): _____ 486 ft	Branch duct: _____ Round flex vinyl
Available static pressure (ASP): _____ -0.3 in H2O	Friction rate: _____ -0.07 in/100ft <small>Friction Rate = ASP ÷ (TEL x 100)</small>	

I declare the load calculation, equipment, equipment selection and duct design were rigorously performed based on the building plan listed above. I understand the claims made on these forms will be subject to review and verification.

Contractor's printed name: _____

Contractor's signature: _____ Date: _____

Reserved for County, Town Municipality or Authority having jurisdiction use.

*Home qualifies for MJ1AE Form based on Abridged Edition Checklist

Load Short Form Entire House

Job:
Date: Nov 04, 2015
By:

Project Information

For: demo 2

Design Information

	Htg	Clg	Infiltration	Simplified
Outside db (°F)	9	88	Method	Average
Inside db (°F)	70	75	Construction quality	0
Design TD (°F)	61	13	Fireplaces	
Daily range	-	M		
Inside humidity (%)	30	50		
Moisture difference (gr/lb)	26	36		

HEATING EQUIPMENT

Make	Amana
Trade	AMANA
Model	ASZ130241A*
AHRI ref	3620211
Efficiency	8 HSPF
Heating input	
Heating output	23000 Btuh @ 47°F
Temperature rise	26 °F
Actual air flow	800 cfm
Air flow factor	0.030 cfm/Btuh
Static pressure	0 in H2O
Space thermostat	

COOLING EQUIPMENT

Make	Amana
Trade	AMANA
Cond	ASZ130241A*
Coil	AWUF24XX16B*
AHRI ref	3620211
Efficiency	11.0 EER, 13 SEER
Sensible cooling	15820 Btuh
Latent cooling	6780 Btuh
Total cooling	22600 Btuh
Actual air flow	700 cfm
Air flow factor	0.049 cfm/Btuh
Static pressure	0.65 in H2O
Load sensible heat ratio	0.79

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
stairs	56	1000	103	30	5
breakfest	126	2309	1091	69	53
foyer	98	1366	381	41	19
bath	70	1034	630	31	31
br2	132	1744	784	52	38
br3	120	2570	864	77	42
wic	48	877	161	26	8
m bath	60	1729	438	51	21
m bed	238	2552	1570	76	77
hall	88	0	0	0	0
greatroom	314	4432	4921	132	240
stair 2	44	0	0	0	0
bonus rm	273	6296	1639	188	80
kitchen	130	946	1767	28	86

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



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Right-Suite® Universal 2015 15.0.16 RSU06606

documents\Wrightsoft\HVAC\Demo\demo 2.rup Calc=MJB Front Door faces: N

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Entire House	d	1797	26854	14348	800	700
Other equip loads			1562	329		
Equip. @ 0.93 RSM				13636		
Latent cooling				3872		
TOTALS		1797	28416	17507	800	700

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Project Summary

Entire House

Job:
Date: Nov 04, 2015
By:

Project Information

For: demo 2

Notes:

Design Information

Weather: Norwood Memorial, MA, US

Winter Design Conditions

Outside db	9 °F
Inside db	70 °F
Design TD	61 °F

Summer Design Conditions

Outside db	88 °F
Inside db	75 °F
Design TD	13 °F
Daily range	M
Relative humidity	50 %
Moisture difference	36 gr/lb

Heating Summary

Structure	22802 Btuh
Ducts	4052 Btuh
Central vent (23 cfm)	1562 Btuh
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	28416 Btuh

Sensible Cooling Equipment Load Sizing

Structure	12976 Btuh
Ducts	1372 Btuh
Central vent (23 cfm)	329 Btuh
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	0.93
Equipment sensible load	13636 Btuh

Infiltration

Method	Simplified	
Construction quality	Average	
Fireplaces	0	
	Heating	Cooling
Area (ft ²)	1797	1797
Volume (ft ³)	15495	15495
Air changes/hour	0.50	0.26
Equiv. AVF (cfm)	129	67

Latent Cooling Equipment Load Sizing

Structure	2451 Btuh
Ducts	849 Btuh
Central vent (23 cfm)	571 Btuh
Equipment latent load	3872 Btuh
Equipment total load	17507 Btuh
Req. total capacity at 0.70 SHR	1.6 ton

Heating Equipment Summary

Make	Amana
Trade	AMANA
Model	ASZ130241A*
AHRI ref	3620211
Efficiency	8 HSPF
Heating input	23000 Btuh @ 47°F
Heating output	26 °F
Temperature rise	800 cfm
Actual air flow	0.030 cfm/Btuh
Air flow factor	0 in H2O
Static pressure	
Space thermostat	

Cooling Equipment Summary

Make	Amana
Trade	AMANA
Cond	ASZ130241A*
Coil	AWUF24XX16B*
AHRI ref	3620211
Efficiency	11.0 EER, 13 SEER
Sensible cooling	15820 Btuh
Latent cooling	6780 Btuh
Total cooling	22600 Btuh
Actual air flow	700 cfm
Air flow factor	0.049 cfm/Btuh
Static pressure	0.65 in H2O
Load sensible heat ratio	0.79

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Component Constructions Entire House

Job:
Date: Nov 04, 2015
By:

Project Information

For: demo 2

Design Conditions

Location: Norwood Memorial, MA, US Elevation: 49 ft Latitude: 42°N	Indoor: Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	Heating 70 61 30 25.8	Cooling 75 13 50 36.2
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 9 - - 15.0	Cooling 88 21 (M) 73 7.5	Infiltration: Method Construction quality Fireplaces
		Simplified Average 0	

Construction descriptions

	Or	Area ft²	U-value Btu/ft²·°F	Insul R ft²·°F/Btu	Htg HTM Btu/ft²	Loss Btu	Clg HTM Btu/ft²	Gain Btu
Walls								
12F-0sw: Frm wall, vnl ext, 1/2" wood shth, r-21 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	n	297	0.065	21.0	3.98	1181	0.81	241
	e	364	0.065	21.0	3.98	1448	0.81	296
	s	124	0.065	21.0	3.98	493	0.81	101
	w	347	0.065	21.0	3.98	1380	0.81	282
	all	1132	0.065	21.0	3.98	4503	0.81	920
16B-21ad: Knee wall, asphalt shingles roof mat, r-21 kw ins	n	129	0.044	21.0	2.69	347	2.08	268
	e	108	0.044	21.0	2.69	291	2.08	224
	s	24	0.044	21.0	2.69	65	2.08	50
	w	108	0.044	21.0	2.69	291	2.08	224
	all	369	0.044	21.0	2.69	994	2.08	766
Partitions								
12F-0sw: Frm wall, wd ext, r-21 cav ins, 2"x4" wood frm, 16" o.c. stud		231	0.065	21.0	3.98	919	0.33	77
Windows								
4A5-2ov: 2 glazing, clr low-e outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.29); 50% blinds 45°, medium; 6.67 ft head ht	e	56	0.300	0	18.4	1028	27.6	1546
	w	52	0.300	0	18.4	955	27.6	1435
	w	42	0.300	0	18.4	771	27.6	1159
	all	150	0.300	0	18.4	2754	27.6	4140
4A5-2ov: 2 glazing, clr low-e outr, air gas, insulated vinyl frm mat, clr innr, 1/4" gap, 1/8" thk; 6.67 ft head ht	s	12	0.470	0	28.8	345	19.6	235
Doors								
11D0: Door, wd sc type	e	21	0.390	0	23.9	501	9.24	194
	n	21	0.390	0	23.9	501	9.24	194
	all	42	0.390	0	23.9	1002	9.24	388
Ceilings								
16B-38ad: Attic ceiling, asphalt shingles roof mat, r-38 ceil ins, 1/2" gypsum board int fnsh		1436	0.026	38.0	1.59	2285	1.23	1762
18A-38ad: Rf/clg ceiling, asphalt shingles roof mat, frm cons, 1/2" gypsum board int fnsh, 10" thkns, r-38 ceil ins		416	0.029	38.0	1.77	737	0.56	231



Floors

20P-30c: Flr floor, frm flr, 6" thkns, carpet flr fnsh, r-30 cav ins, gar ovr

273

0.035

30.0

2.14

585

0.25

69

et .

2

2

1

1

1

20P-30c: Flr floor, frm flr, 6" thkns, carpet flr fnsh, r-30 cav ins, gar ovr



Building Analysis Entire House

Job:
Date: Nov 04, 2015
By:

Project Information

For: demo 2

Design Conditions

Location:

Norwood Memorial, MA, US
Elevation: 49 ft
Latitude: 42°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating	Cooling
9	88
-	21 (M)
-	73
15.0	7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

70
61
30
25.8

Cooling

75
13
50
36.2

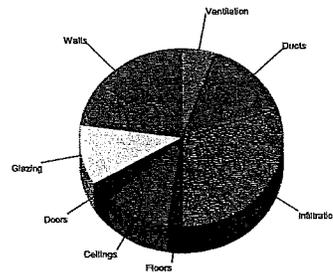
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

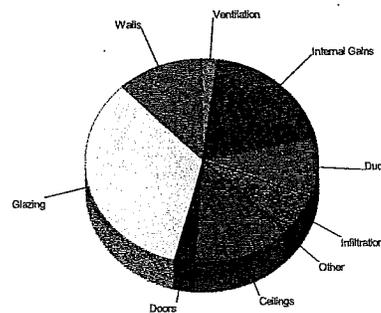
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.7	6416	22.6
Glazing	19.1	3099	10.9
Doors	23.9	1002	3.5
Ceilings	1.6	3022	10.6
Floors	2.1	585	2.1
Infiltration	5.2	8677	30.5
Ducts		4052	14.3
Piping		0	0
Humidification		0	0
Ventilation		1562	5.5
Adjustments		0	0
Total		28416	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.0	1763	12.0
Glazing	30.8	4992	34.0
Doors	9.2	388	2.6
Ceilings	1.1	1994	13.6
Floors	0.3	69	0.5
Infiltration	0.6	951	6.5
Ducts		1372	9.3
Ventilation		329	2.2
Internal gains		2820	19.2
Blower		0	0
Adjustments		0	0
Total		14678	100.0



Latent Cooling Load = 3872 Btuh
Overall U-value = 0.057 Btuh/ft²·°F

Data entries checked.



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uments\Wrightsoft\HVAC\Demo\demo 2.rup Calc = MJ8 Front Door faces: N

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Manual S Compliance Report

Entire House

Job:
Date: Nov 04, 2015
By:

Project Information

For: demo 2

Cooling Equipment

Design Conditions

Outdoor design DB: 87.9°F	Sensible gain: 14678 Btuh	Entering coil DB: 75.9°F
Outdoor design WB: 73.4°F	Latent gain: 3872 Btuh	Entering coil WB: 63.3°F
Indoor design DB: 75.0°F	Total gain: 18549 Btuh	
Indoor RH: 50%	Estimated airflow: 700 cfm	

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split ASHP
Manufacturer: Amana Model: ASZ130241A*+AWUF24XX16B*
Actual airflow: 700 cfm
Sensible capacity: 15570 Btuh 106% of load
Latent capacity: 4324 Btuh 112% of load
Total capacity: 19893 Btuh 107% of load SHR: 78%

Heating Equipment

Design Conditions

Outdoor design DB: 8.8°F	Heat loss: 28416 Btuh	Entering coil DB: 66.5°F
Indoor design DB: 70.0°F		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split ASHP
Manufacturer: Amana Model: ASZ130241A*+AWUF24XX16B*
Actual airflow: 800 cfm
Output capacity: 22600 Btuh 80% of load
Supplemental heat required: 5816 Btuh
Capacity balance: 26 °F
Economic balance: -99 °F

Backup equipment type: Gas furnace
Manufacturer: Amana Model: ACSS920402BN
Actual airflow: 800 cfm
Output capacity: 37000 Btuh 130% of load Temp. rise: 50 °F

The above equipment was selected in accordance with ACCA Manual S.



wrightsoft®

Right-Suite® Universal 2015 15.0.16 RSU06606

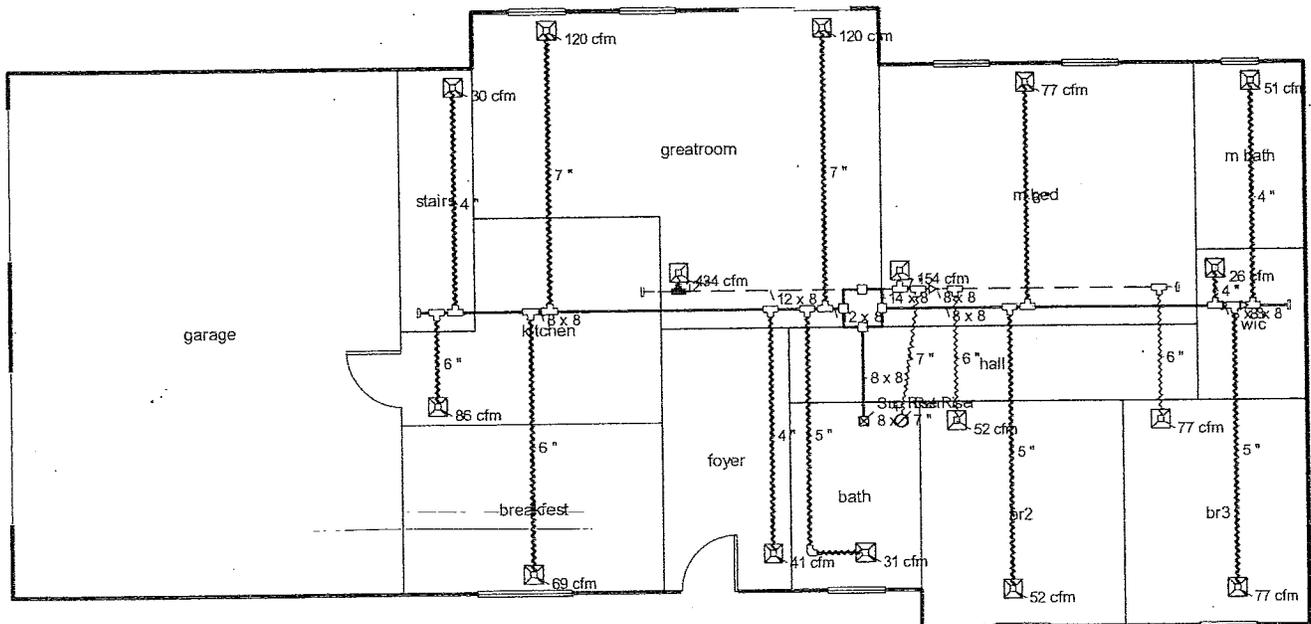
uments\Wrightsoft\HVAC\Demo\demo 2.rup Calc=MJB Front Door faces: N

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Page 1

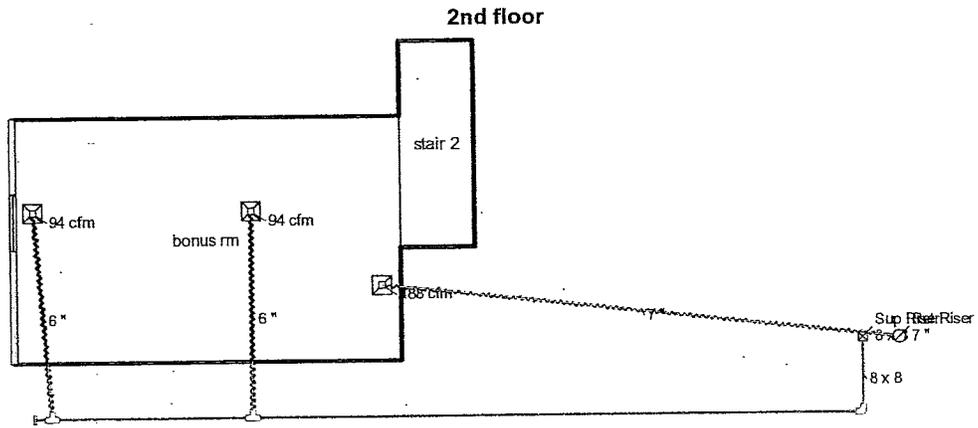
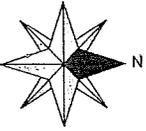


first floor



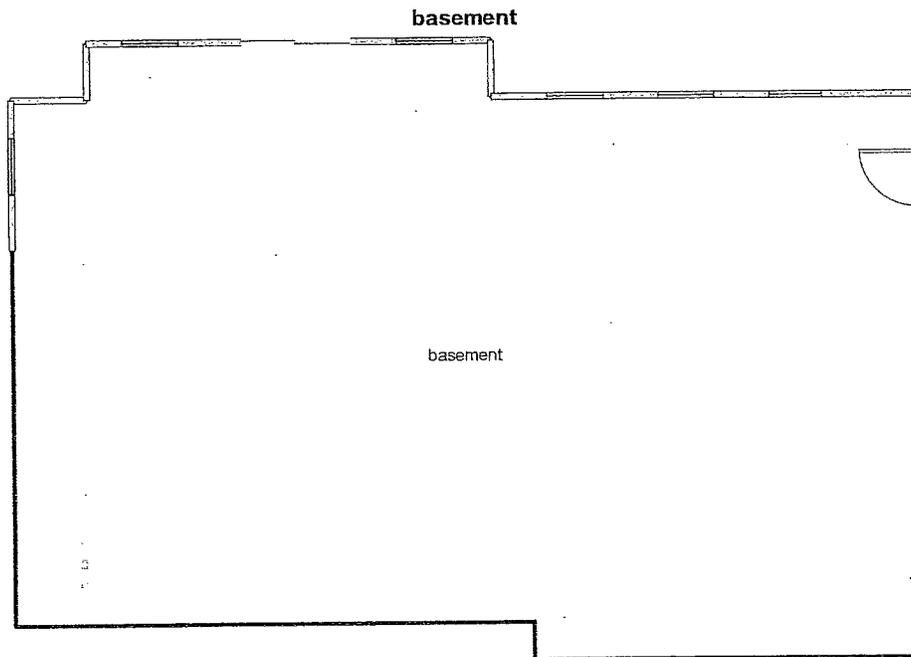
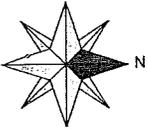
Job #:
Performed for:
demo 2

Scale: 1 : 122
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Job #:
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demo 2

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Job #:
Performed for:
demo 2

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Duct System Summary

Entire House

Job:
Date: Nov 04, 2015
By:

Project Information

For: demo 2

	Heating	Cooling
External static pressure	0 in H2O	0.65 in H2O
Pressure losses	0.33 in H2O	0.33 in H2O
Available static pressure	-0.3 in H2O	0.32 in H2O
Supply / return available pressure	-0.145 / -0.185 in H2O	0.140 / 0.180 in H2O
Lowest friction rate	-0.07 in/100ft	0.066 in/100ft
Actual air flow	800 cfm	700 cfm
Total effective length (TEL)	486 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
bath	c 630	31	31	0.110	5.0	0x0	VIFx	18.0	110.0	st3
bonus rm	h 820	94	40	0.070	6.0	0x0	VIFx	74.0	125.0	st2
bonus m-A	h 820	94	40	0.066	6.0	0x0	VIFx	63.0	150.0	st2
br2	h 784	52	38	0.115	5.0	0x0	VIFx	22.0	100.0	st1
br3	h 864	77	42	0.113	5.0	0x0	VIFx	34.0	90.0	st1A
breakfest	h 1091	69	53	0.099	6.0	0x0	VIFx	31.0	110.0	st3A
foyer	h 381	41	19	0.131	4.0	0x0	VIFx	17.0	90.0	st3
greatroom	c 2460	66	120	0.126	7.0	0x0	VIFx	31.0	80.0	st3
greatroom-A	c 2460	66	120	0.111	7.0	0x0	VIFx	16.0	110.0	st3
kitchen	c 1767	28	86	0.137	6.0	0x0	VIFx	27.0	75.0	st3A
m bath	h 438	51	21	0.120	4.0	0x0	VIFx	32.0	85.0	st1B
m bed	c 1570	76	77	0.127	6.0	0x0	VIFx	20.0	90.0	st1
stairs	h 103	30	5	0.105	4.0	0x0	VIFx	33.0	100.0	st3A
wic	h 161	26	8	0.140	4.0	0x0	VIFx	20.0	80.0	st1

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st2	Peak AVF	188	80	0.066	422	5.8	8 x 8	ShtMetl	st3
st3A	Peak AVF	127	144	0.099	325	6.7	8 x 8	ShtMetl	
st3	Peak AVF	330	434	0.099	651	10.1	8 x 12	ShtMetl	
st1	Peak AVF	282	186	0.113	635	7.2	8 x 8	ShtMetl	st1A
st1B	Peak AVF	51	21	0.120	116	3.2	8 x 8	ShtMetl	
st1A	Peak AVF	128	64	0.113	288	4.8	8 x 8	ShtMetl	

Bold/italic values have been manually overridden



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Right-Suite@ Universal 2015 15.0.16 RSU06606

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Return Branch Detail Table

Name	Grill Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb6	0x0	188	80	243.2	0.074	702	7.0	0x 0		VIFx	rt1
rb7	0x0	52	38	212.0	0.085	265	6.0	0x 0		VIFx	rt1A
rb9	0x0	154	106	93.0	0.193	575	7.0	0x 0		VIFx	rt1
rb10	0x0	330	434	156.0	0.115	552	12.0	0x 0		VIFx	rt2
rb8	0x0	77	42	273.0	0.066	390	6.0	0x 0		VIFx	rt1A

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt1	Peak AVF	470	266	0.066	604	9.1	8 x 14	ShtMetl	rt1
rt1A	Peak AVF	129	80	0.066	289	5.8	8 x 8	ShtMetl	
rt2	Peak AVF	330	434	0.115	651	9.8	8 x 12	ShtMetl	

